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10/693,853	10/23/2003	Steven M. Arnold	LEW 17,510-1	3668

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NASA GLENN RESEARCH CENTER
21000 BROOKPARK ROAD
OFFICE OF CHIEF COUNSEL; MAIL STOP 500-118
CLEVELAND, OH 44135

EXAMINER	
NGUYEN, XUAN LAN T	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/693,853
Filing Date: October 23, 2003
Appellant(s): ARNOLD ET AL.

Kent N. Stone
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/12/05 appealing from the Office action mailed 5/20/05.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,095,295	**PARK et al.**	**8-2000**
6,318,522	**JOHNSTON et al.**	**11-2001**
3,448,751	**ROSEAN**	**6-1969**

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The rejection was presented in the Final Office Action dated 5/20/05 and is reproduced here for the Board's convenience.

Claims 1-3, 6-11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (USP 6,095,295) in view of Johnston et al. (USP 6,318,522) and further in view of Rosaen (USP 3,448,751).

Re: claim 1, Park et al. show a magnetorheological device, as in the present invention, comprising: a generally cylindrically shaped housing 113 having cylindrical walls and a divider 115 within said housing; said housing includes an integral end portion 121 and an end plate, not numbered but shown with the bolts on top of figure 1, removably attached to said cylindrically shaped housing; a rotary impeller having a paddle 112 mounted within said housing, said rotary impeller sealingly engaging said

divider, said paddle in combination with said cylindrical walls, said divider, said integral end portion of said housing, and said end plate of said housing form a first chamber 116 A and a second chamber 116B, a magnetorheological fluid residing in said chambers; a passageway 125-129 interconnecting said first and second chambers; and, a coil 122 enabling the viscosity of the magnetorheological fluid to be varied, see from column 3, line 67 to column 4, line 11. Park lacks a second paddle in the structure of the rotary impeller. Johnston et al. teach the concept of varying the number of paddles from one to a multiple of paddles in column 3, lines 2-7. Specifically, Johnston shows in figure 2, a magnetorheological device with 2 paddles 26, 27. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Park's magnetorheological device to have comprised two paddles as taught by Johnston to further increase the adjustability of the damping capability of the device. Park shows the coil 122 being located at the end of passageway 125-129 while claim 1 requires the coil to be surrounding a portion of the passageway. Rosaen teaches the concept of surrounding the passageway 18 of the MR fluid with a coil 20 as an effective way to vary the viscosity of the fluid in the passageway to control the flow, see column 2, lines 49-53. It would have been further obvious to one of ordinary skill in the art at the time the invention was made to have further modified Park's device with the coil surrounding the passageway such as taught by Rosaen wherein the magnetic field would be stronger and it would have been a much more effective way to vary the viscosity of the MR fluid as shown by Rosaen.

Re: claims 2 and 3, the Examiner takes an Official Notice that it is old and well known that electric currents can be either a direct current or an alternate current and would have been within a routine for one of ordinary skill in the art to have employed a direct current or an alternate current for use with the coil.

Re: claims 6 and 7, Park shows said passageway is interior to the housing 113 in sections of 128, 129 and exterior to the housing 113 in sections 125-127.

Re: claims 8, 9 and 11, Park further shows a first edge seal 136 extending from said first paddle and would have comprised a second edge seal for the second paddle, as modified; a third inner seal 138 affixed to said integral end portion and a fourth seal 137 affixed to said end plate, as shown.

Re: claim 10, Park shows said passageway 125-129 to be a tortuous path.

Re: claim 15, Park shows magnetorheological device, as in the present invention, comprising: a housing 113 having a divider 115 extending inwardly from said housing, a hub 111 having a first impeller 112 rotatably mounted within said housing; said first impeller straddling said divider, as shown, a first chamber 116A formed by said first impeller and said divider and a second chamber 116B formed by said first impeller and said divider, a passageway 125-129 interconnecting said first and second chambers, magnetorheological fluid in said chambers and said passageway; a magnetic field generated by a coil 122 such that an increase in said field increases the viscosity of the magnetorheological fluid, see from column 3, line 67 to column 4, line 11; said hub and impellers rotatably pushing said magnetorheological fluid against said divider such that said magnetorheological fluid is in compression. Park lacks a second paddle in the

structure of the rotary impeller. Johnston et al. teach the concept of varying the number of paddles from one to a multiple of paddles in column 3, lines 2-7. Specifically, Johnston shows in figure 2, a magnetorheological device with 2 paddles 26, 27. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Park's magnetorheological device to have comprised two paddles as taught by Johnston to further increase the adjustability of the damping capability of the device. Note that, as modified, Park's second chamber would be formed by the second paddle and the divider. Park shows the coil 122 being located at the end of passageway 125-129 while claim 15 requires the coil to be surrounding a portion of the passageway and to form a plug. Rosaen teaches the concept of surrounding the passageway 18 of the MR fluid with a coil 20 as an effective way to vary the viscosity of the fluid in the passageway from having no effect in the MR fluid to forming a plug to completely preventing flow in order to control the flow in passageway 18, see column 2, lines 49-53. It would have been further obvious to one of ordinary skill in the art at the time the invention was made to have further modified Park's device with the coil surrounding the passageway such as taught by Rosaen wherein the magnetic field would be stronger and it would have been a much more effective way to vary the viscosity of the MR fluid from having no effect in the MR fluid to forming a plug to completely preventing flow in order to control the flow in the passageway as taught by Rosaen.

(10) Response to Argument

Appellant argues that Park and Johnston teach shearing of the MR fluid while Rosaen teach compression of the MR fluid and it would not be obvious nor proper to combine Park and Johnston in view of Rosaen.

Re: claim 1, It is believed that Appellant's argument is rather specific. As stated previously in the Final Rejection, the Examiner maintains that MRF is capable of being a slightly thickening fluid to forming a plug depending the strength of the current. Hence, Park's or Johnston's or Rosean's device would be able to comprise a slightly thickening MR fluid to forming a plug depending on the strength of the current. This is an inherent property of MR fluid. Therefore, it is believed that Appellant's device would be capable of comprising a slightly thickening MR fluid to forming a plug depending on the strength of the current. It is further noted that claim 1 claims "a coil surrounding a portion of said passageway ***enabling*** the ***viscosity*** of the magnetorheological fluid ***to be varied***". Claim 1 does not claim a compression technology. In fact, claim 1 claims both shearing technology and compression technology since the viscosity can be varied from slightly thickening to forming a solid plug. Since claim 1 does not exclude a situation of shearing the MRF, Park, in view of Johnston and further in view of Rosean meet the claimed features of claim 1.

Re: claim 15, Appellant claims "a magnetic field generated by a coil surrounding said passageway such that an increase in said field increases the viscosity of the magnetorheological fluid; said magnetorheological fluid in said passageway being

solidified upon application of a sufficient magnetic field thereto forming a plug in said passageway; said hub and impellers rotatably pushing said magnetorheological fluid against said divider and said plug such that said magnetorheological fluid is in compression." Once again, Appellant is claiming an inherent property of the MR fluid wherein the plug would be formed should there be sufficient magnetic field. The Examiner maintains that Park, in view of Johnston and further in view of Rosean would comprise this inherent property of the MR fluid wherein the plug would be formed should there be sufficient magnetic field.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Lan Nguyen 7/25/06

Lan Nguyen, Primary Examiner, AU 3683

Conferees:

James McClellan

Robert Siconolfi

Lan Nguyen XLN